REMARKS

Claims 1 and 23-30 are pending in the current application. No amendments have been made to the claims. Reconsideration of the pending claims in light of the following remarks and the attached DECLARATION OF STEVEN PRYOR PURSUANT TO 37 C.F.R. §1.132 is hereby requested.

INTERVIEW SUMMARY

On November 15, 2005, the undersigned attorney and the Examiner conducted a telephonic interview. The prior art was discussed, but no substantive agreement on the claims was reached.

TERMINAL DISCLAIMER

Applicants submitted a terminal disclaimer on March 10, 2005 in response to the non-statutory double-patenting rejection in the Examiner's Office Action. No mention of the Terminal Disclaimer is present in the June 2005 Office Action. Since this ground of rejection is not present in the current Office Action, Applicants assume the terminal disclaimer has been received and accepted.

CLAIM REJECTIONS - 35 U.S.C. §103(a)

The Examiner has rejected claims 1 and 23-30 as being obvious under 35 U.S.C. § 103(a) in light of U.S. Patent Number 5,706,626, granted to Mueller

("Mueller"), in combination with either U.S. Patent 4,037,381, granted to Charles ("Charles"), or U.S. Patent 5,390,466, granted to Johnson et al. ("Johnson").

The claim rejections set forth by the Examiner are premised on the assertion that one of ordinary skill would find it obvious to combine the washers of Johnson or the brackets of Charles with Mueller's metal shear wall to provide all the elements of Applicants' invention, including a "means for reducing bending of the perimeter fasteners." (Office Action, Page 2).

As discussed herein, there is no evidence that one of ordinary skill would combine the cited references in the manner suggested. Rather, one skilled in the art would not even consider the issue of reducing the bending of fasteners in a steel wall like Mueller. Important differences between steel walls like the Mueller wall and wood walls are well known to those skilled in the art, and one skilled in the art would have no reason to combine the Charles brackets or the Johnson washers with the Mueller wall for reasons explained in detail below. The references themselves provide no suggestion that such a combination is proper, and Applicants respectfully submit that one of ordinary skill would not combine the references as asserted by the Examiner in the rejection. Evidence supporting these statements is submitted herewith in the form of a Declaration of Steven Pryor under 37 C.F.R. §1.132.

The evidence submitted by Applicants demonstrates that the fasteners in the Mueller wall do not bend or shear prior to the time that the panels and side posts buckle and fail when the wall is subjected to loading. Thus, even if the Charles

brackets or the Johnson washers were added to the Mueller wall, and acted in the manner suggested by the Examiner (which is disputed by Applicants), such structure would not reduce any bending of the fasteners or otherwise improve the performance of the Mueller wall.

Furthermore, if the references were combined as the Examiner suggests, no "means for reducing bending of [the] perimeter fasteners" would result. In particular, when construing the claims in a manner consistent with the law regarding means plus function language, the Examiner has failed to show that the combination asserted results in a "means for reducing bending of [the] perimeter fasteners" as claimed by Applicants.

In summary, it is not obvious (or even logical) to one skilled in the art to add the Charles brackets or the Johnson washers to the Mueller wall. Nor would such an addition actually reduce any bending of the Mueller perimeter fasteners. The Pryor Declaration with its exhibits and the documents attached hereto demonstrate that there is no support for the Examiner's position. Applicants respectfully submit that the rejections of claims 1 and 23-30 should be withdrawn for the reasons set forth below.

I. INDEPENDENT CLAIMS 1 AND 23

A. One of Ordinary Skill Would Not Combine the References as Asserted.

Independent claims 1 and 23 call for "means for reducing bending of [the] perimeter fasteners." There is no motivation for one of ordinary skill to combine the teaching of Mueller with Johnson or Charles to achieve the claimed invention.

Mueller discloses a steel diaphragm wall. (Mueller, Col. 6, lines 42-64). The function of the fasteners 124 is to "... securely interconnect the inner retaining member 114, the reinforcing members 116, the diaphragm members 110a and 110b and the outer retaining member 120." (Mueller, Col. 5, lines 41-43). Each of these elements 114, 116, 110 and 120 is 18 gauge steel. (See Mueller, Col. 6, lines 42-64). The approximate thickness of 18 gauge steel is approximately 050" (http://www.engineersedge.com/gauge.htm).

The Examiner's position amounts to a contention that one of average skill in the art would find it obvious to add an additional washer (Johnson) or bracket (Charles) to the steel sandwich of parts -- 114, 116, 110 and 120 -- interconnected by the fasteners 124.

Combining the references as suggested by the Examiner is not supported by the references, and is refuted by the Declaration of Mr. Pryor submitted herewith.

1. Steel Walls and Wood Walls are Different.

As explained in the Pryor Declaration, steel panel walls perform differently than wood panel walls. (Pryor Declaration, ¶ 9). In particular, the desired failure mechanism in a steel wall is different from the desired failure mechanism in a wood wall. (Pryor Declaration, ¶ 9).

Applicants' patent disclosure teaches that the need for the present invention was discovered by Applicants as they tested wood structural panel walls that were typically used in building construction at the time such invention was made. Such walls include one or more structural panels (e.g., plywood or Oriented Strand

Board), framing members (e.g., 2" x 4" or 4" x 4" studs), and a plurality of perimeter fasteners (e.g., nails, screws or staples) connecting one or more of the framing members to one or more of the structural panels. (Application, p. 1, lines 1-15, p. 2, lines 1-4, p. 2, lines 26-28). Through cyclic testing of various conventional wood walls, Applicants discovered that the perimeter fasteners were the critical weak link through which failure of the overall system occurs. (Application, p. 3, lines 2-5). The application teaches that the predominant failure mode in commonly constructed wood walls is the flexing and fatiguing of the nails around the perimeter or outer edges of the structure that connect the structural panels to the frame of the diaphragm. (Application, p. 5, lines 1-4). The invention includes certain "means for reducing bending of [the] perimeter fasteners" and an improved mechanical connection that results in better performance of wood shear walls and diaphragms.

In steel walls, the predominant failure mode is not the flexing and fatiguing of fasteners around the perimeter or outer edges of the structural panels. (Pryor Declaration, ¶ 18). Steel walls should be designed to avoid any brittle failure mode such as fastener failure, which would result in sudden failure in a manner that would not allow other elements of the structure to begin to participate in resisting the load (a process known as load sharing). (Pryor Declaration, ¶ 17). Thus, one skilled in the art designing a steel wall like the Mueller wall should select fasteners of sufficient size and strength to ensure that the failure of the wall does not occur at the fastener. (Pryor Declaration, ¶¶ 16-18). In a wood wall, in contrast, the

non-linear yielding behavior associated with the bending of the fastener and the crushing of the wooden panel and post around the fastener is desirable, as such crushing and deformation actions dissipate the lateral forces imposed on the wood wall. (Pryor Declaration, ¶¶ 10-11).

Simpson Strong-Tie Company Inc. ("Simpson"), is the owner by assignment of the present application. Simpson also owns the Mueller patent, which was assigned to it in 1999. (Pryor Declaration, ¶ 7). Shortly after the assignment was made, Mr. Mueller provided Simpson with photographs and documentation related to cyclic, dynamic testing of certain steel structural panel walls that are very similar to the embodiments disclosed the Mueller patent. (Pryor Declaration, ¶¶ 7, 14-15)

The photographs and documents related to the testing of the Mueller wall, which are attached as exhibits to the Pryor Declaration, demonstrate that the side posts and panels of the Mueller wall buckle and fail prior to any bending or breaking of the fasteners that hold such elements together. (Pryor Declaration, ¶ 17, Exhibits 1, 2). Such a failure mode is consistent with what would be expected by one skilled in the art looking at Mueller, and is also consistent with the disclosure in the Mueller patent specification. (Pryor Declaration, ¶ 17; Mueller patent, Col. 2, lines 58-60, Col. 9, lines 5-8.)

2. Steel Walls Like Mueller Do Not Require A "Means for Reducing Bending."

Mr. Pryor notes in his Declaration some of the reasons why steel walls fail differently than wood walls. (Pryor Declaration, ¶¶ 9-12, 16-17). In a properly designed steel wall that had panels attached to the side posts, failure of the screws

themselves would not be the failure mode. The reaction of fasteners in such steel walls is distinct from wood walls. (Pryor Declaration, ¶ 17). One skilled in the art would design such a steel wall by selecting screws that do not bend or shear, and by limiting the thickness of the steel posts to allow the screws to pivot or rotate and thereby prevent shear failure of the screws. (Pryor Declaration, ¶ 17). The International Building Code, in its provisions for the seismic design of steel sheathed walls with cold-rolled posts or studs, limits the base metal thickness of the cold-formed steel posts or studs to which the panels are attached to 0.048". (Section 2211.4.4, the International Building Code included as Attachment A). Thus, when shear forces push the sheathing or panel past the post, the thin-walled studs will be able to deform which will allow the screw to pivot or rotate, and thus protect the screw from shear failure. Thus, as Mr. Pryor explains, bending of the perimeter fasteners in the Mueller wall is not an issue he would consider or try to address if asked to improve the connection between the panels and vertical side posts of the Mueller wall. (Pryor Declaration, ¶ 18).

Given the manner in which steel walls are designed and constructed, one skilled in the art would not be motivated to add to the structure of Mueller any "means for reducing bending of [the] perimeter fasteners." (Pryor Declaration, ¶¶ 18, 19). In the Mueller wall, no means for reducing bending is desired or required. (Pryor Declaration, ¶17). Thus, one skilled in the art would not combine the Charles brackets or the Johnson washers with the Mueller wall in the manner suggested by the Examiner. (Pryor Declaration, ¶19).

3. There is No Suggestion in the References Cited to Combine the Teachings of Mueller with the Teachings of Charles or Johnson.

The Examiner has not identified any suggestion or need disclosed in Mueller to reduce the fasteners 124 from bending, and nothing in Mueller's teachings supports this contention. To the contrary, Mueller suggests that the steel sheets tend to buckle when the wall is under load. (See Mueller, Col. 2, lines 58-60; Col. 9, lines 5-8). The fact that Mueller does not teach that the fasteners need to be supported is not surprising since one skilled in the art would design such a wall so that the fasteners do not bend or shear. (Pryor Declaration, ¶¶ 17-18).

Neither Charles nor Johnson suggests the combination of structural elements described in claims 1 and 23, nor do they even address seismic loading of panels. The Charles patent relates to a building panel having attachment tabs which can be nailed to the sides of usual building wall studs in order to reduce the time and expense associated with the construction of an exterior stucco wall. (Charles, Col. 1, lines 1-35). The brackets in Charles are tabs used for attaching the panels to studs and are themselves "relatively thin" (22 or 24 gauge – approximately .025 inch thick) sheet metal, "spot welded or riveted" to the frames and nailed to the stud. (Charles, Col. 4, lines 5-18). The purpose of the brackets in Charles is to secure the panel to the stud, and the Charles specification suggests bending each tab to form the leg necessary to complete the attachment. (Charles, Col. 4, lines 25-28). Charles does not suggest that the tabs could act as "means for reducing bending of [the] perimeter fasteners" in a shear wall, nor does Charles suggest that

the tabs may be used as an attachment mechanism for a structure like the Mueller wall.

The washers in Johnson are a combination of metallic and thermal insulating washers. The Johnson patent relates to panels that have novel structures adapted to protect the interior of the building from intrusion of heat and cold, from fire, and/or, in some embodiments, from small arms gunfire. (Johnson, Col. 2, lines 41-44) The purpose of the washers is not to stop fastener bending, but to provide insulation between the members of the pre-fabricated unit. (Col. 5, line 67 - Col. 6, line 3; Col. 6, line 37-41). There is no suggestion to use the metal washers 32 or insulating washers 35 in a structure like the Mueller wall. Nor is there any suggestion that the washers could function as a "means for reducing bending of [the] perimeter fasteners" in a shear wall.

Hence, there is no motivation in the references cited to combine the teachings of Mueller with the teachings of Charles or Johnson. And, as demonstrated by Mr. Pryor's Declaration, one skilled in the art of designing metal walls for shear resistance would not in fact combine the teachings of such references as asserted. (Pryor Declaration, ¶ 19). The Examiner's rejection is not supported by the record, and reconsideration of claims 1 and 23 is therefore requested.

B. Adding the Charles Brackets or the Johnson Washers to the Mueller Wall Would Not Result in a Means for Reducing Bending of the Perimeter Fasteners.

1. Adding Washers or Brackets to the Mueller Wall Would Not Reduce the Bending of Fasteners.

As explained in detail above, the fasteners 124 of the Mueller wall will not bend or shear prior to the time that the panels and side posts of the Mueller wall will buckle and fail when subjected to loading. (Pryor Declaration, ¶¶ 18, 19). The failure mode for the Mueller wall is not the fasteners. (Pryor Declaration, ¶¶ 17, 18).

According to Mr. Pryor, adding washers or brackets to the structure of Mueller will not function as a structure to reduce the bending of the fasteners or otherwise improve the overall performance of the wall. (Pryor Declaration, ¶ 19). In fact, adding washers under the fasteners in the Mueller wall would be unlikely to have any effect on how the Mueller wall fails at ultimate load, since the observed ultimate failure of the Mueller wall is caused by the buckling of the panels and the side posts. (Pryor Declaration, ¶¶ 17, 19).

Hence, the proposed combination would not result in the claimed invention, and the Examiner's rejection is not supported by the evidence.

2. Equivalent Structure is Not Shown in Charles or Johnson.

The means-plus-function language specifically describes corresponding structure in the specification performing a specific function. See, for example, page 8, line 19 – page 12, line 11, and additional sections of the specification identifying other or equivalent structures.

A claim limitation expressed in means-plus-function language "shall be construed to cover the corresponding structure described in the specification and equivalents thereof." 35 U.S.C. §112, paragraph 6. As set forth in In re

Donaldson, 29 USPQ2d 1845, 1848 (Federal Circuit 1994), "one construing means-plus-function language in a claim must look to the specification and interpret that language in light of the corresponding structure, material, or acts described therein, and equivalents thereof, to the extent that the specification provides such disclosure." Moreover, the USPTO must apply 35 U.S.C. §112, sixth paragraph, and give claims their broadest reasonable interpretation, in light of and consistent with the written description of the invention in the application. See In re Donaldson, 29 USPQ2d 1845 at 1850 (Federal Circuit 1994) (MPEP §2181).

The Johnson brackets and Charles washers do not provide a "...means for reducing bending of said perimeter fasteners acting when said lateral forces are imposed on said building structure..." Since equivalent structure is not shown in the cited prior art, Applicants respectfully request that the rejections be withdrawn.

C. No Support Exists for the Examiner's Position.

1. There is No Evidence to Refute Mr. Pryor.

Among other things, Mr. Pryor's Declaration confirms that steel walls like the Mueller wall would be designed by selecting fasteners of sufficient size and strength to ensure that the fasteners do not bend or shear prior to the buckling of the panels or side posts. (Pryor Declaration, ¶ 18). Mr. Pryor states that a skilled designer would not choose to combine the Charles brackets or Johnson washers with the Meuller wall, as suggested by the Examiner. (Pryor Declaration, ¶ 19). Mr. Pryor also states that if the Charles brackets or the Johnson washers were added to the screws of the Mueller wall, he would not expect the overall

performance of the wall to improve, nor would he expect that such washers or brackets would reduce the bending of the fasteners. (Pryor Declaration, ¶ 19).

Applicant's submission of Mr. Pryor's Declaration evidence is unrefuted in the record.

2. The Examiner's Assertions on the Ability of Brackets of Washers is Traversed.

The Examiner, in making the rejection, concludes that:

> it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the structure of Mueller with the means for reducing bending of fasteners of either Charles or Johnson et al. in order to ensure that the panel is structurally sound and capable of resisting forces imposed thereupon. Without additional brackets or washers, when a force is imposed on the structure the fasteners will tend to break or fracture and not be able to maintain its structural integrity.

Applicants must respectfully disagree with such conclusions.

First, none of the references suggest the need for such a combination, and no support is provided for the conclusions cited above, other than the opinion of the Examiner. Neither Charles nor Johnson teaches that it is known in the art to provide a structural panel with means for reducing bending of fasteners. Johnson does not ascribe such a purpose for washers 32; and for washers 35, Johnson teaches that these insulate the fasteners, so they do not become thermal conductors. (Johnson, Col. 8, lines 42–47). Similarly, Charles teaches brackets that are attached to studs in a wall with fasteners, but does not teach that the brackets reduce the bending of those fasteners.

Second, Mr. Pryor's Declaration specifically addresses and refutes the conclusion that "it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the structure of Mueller with the means for reducing bending of fasteners of either Charles or Johnson." (Pryor Declaration, ¶ 19). Mr. Pryor further explains that a skilled designer would not try to prevent rotation or pivoting of the screws connecting the panels to the posts of the Mueller wall, and emphasizes that bending of the fasteners is not an issue that a skilled designer would try to address in steel walls like Mueller. (Pryor Declaration, ¶¶ 17,18,19).

Mr. Pryor's Declaration also specifically refutes the statement that, "without additional brackets or washers, when a force is imposed on the structure the fasteners will tend to break or fracture and not be able to maintain its structural integrity." Among other things, Mr. Pryor's Declaration and the documents attached thereto demonstrate that the Mueller wall fails due to buckling of the panels and the side posts, and that none of the screws joining such panels and side posts appear to be bent or broken when the wall was subjected to cyclic testing. (Pryor Declaration, ¶¶ 17, 18).

Applicants specifically traverse the Examiner's assertion that "brackets and washers are old and very well known in the art for the ability to reduce fasteners from bending as a result of forces being applied thereto." Applicants also specifically traverse the Examiner's assertion that "without additional brackets or washers, when force is imposed on the [Mueller] structure the fasteners will tend

to break or fracture and not be able to maintain its structural integrity." Applicants respectfully request that the Examiner provide support for these statements in accordance with M.P.E.P. §2144.03(c): "If Applicant Challenges a Factual Assertion as Not Properly Officially Noticed or not Properly Based Upon Common Knowledge, the Examiner Must Support the Finding With Adequate Evidence."[1]

3. The Examiner Cannot Use Hindsight to Assemble the Elements.

An invention is not obvious where old and well-known elements are put to a new and unique use. "The claimed invention must be considered as a whole, and the question is whether there is something in the prior art as a whole to suggest the desirability, and thus the obviousness of making the combination ...." Lindermann Maschinenfabrik GmbH v. American Hoist & Derrick Co., 221 USPQ 481, 488 (Fed. Cir. 1984). The best that can be said of Charles and Johnson is that they teach the use of brackets and washers that receive fasteners.

It also appears that the Examiner is improperly using the Applicant's own invention as the suggestion to make the combination. "Obviousness cannot be established by combining the teaching of the prior art to produce the claimed invention absent some teaching or suggestion supporting the combination." ACS Hospital Systems, Inc. v. Motnefiore Hospital, 221 USPQ 929, 933 (Fed. Cir. 1984). As noted above, the Office Action states:

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[1] As further provided in Section 2144.03(c):

> ....If the examiner is relying on personal knowledge to supporting the finding of what is known in the art, the examiner must provide an affidavit or declaration setting forth specific factual statements and explanations to support the finding. See 37 CFR 1.104(d)(2).

> Without additional bracket or washers, when a force is imposed on the structure the fastener will tend to break or fracture and not be able to maintain its structural integrity. However, brackets and washers provide fasteners with the strength needed to withstand forces imposed thereon.

The Examiner implies that the prior art teaches this combination; however, the only support for this statement comes in Applicants' own specification, where at the top of page 5, it states:

> [The inventors] discovered that the predominant failure mode is the flexing and fatiguing of the nails around the perimeter or outer edges of the structural panels that connect the structural panels to the frame of the diaphragm. The present invention addresses this problem, allowing shearwalls and diaphragms to be both stronger and stiffer.

Hence there is no motivation or suggestion to combine the references in the manner suggested by the Examiner, other than the teachings set forth in Applicants' own specification.

4. Claim 23 Should Also be Allowed Because the Prior Art Does Not Show Fasteners That Do Not Pass All the Way Through the Framing Member.

An additional reason why the Examiner has not set forth a prima facie rejection under 35 U.S.C. §103 exists with respect to claim 23: the Examiner has failed to show that any of the references teach the claimed limitation that the perimeter fasteners do not "[pass] all the way through [the] elongated framing member." See claim 23, sub-part c. Applicants respectfully submit that none of the references cited contain such structure.

II. DEPENDENT CLAIMS 24-30

A. If the Rejection of Claim 23 is Withdrawn, All Rejections of Dependent Claims 24-30 Should Also be Withdrawn.

Claims 24, 25, 26, 27, 28, 29 and 30 all depend from claim 23, and each includes additional limitations thereto. The arguments made above with respect to claim 23, both generally and specifically, apply with equal weight to claims 24-30. If the rejection with respect to claim 23 is withdrawn, as it should be, all rejections of dependent claims 24-30 should also be withdrawn.

B. Dependent Claims 25-26 Were Improperly Rejected Over Mueller Alone.

The Examiner's rejection of claim 25 and 26 over Mueller alone is inconsistent with the Examiner's rejection of claim 23. In making the rejection of claim 23 over Mueller in combination with Charles or Johnson, the Examiner admitted that Mueller needs to be combined with either the Charles or Johnson references to teach all of the limitations of claim 23. Rejecting claims 25 and 26 on the basis of Mueller alone is inconsistent with the Examiner's admission with respect to the rejection of claim 23. Applicants respectfully request that the rejections of claims 25 and 26 be withdrawn.

Furthermore, with respect to the Examiner's statements about claim 26, and the Examiner's comments with respect to the selection of wood as the material for the structural panel, Applicants disagree that this claim can be rendered obvious in light of the Mueller patent or that the Mueller patent can be used as support for characterizing the selection of wood as the material for the panel as an "obvious matter of design choice." Applicants note that the table in the specification of the present application, at page 19, shows a notable increase in the strength of wood-panel shear walls, when made according to the present invention. In comparison,

neither Mueller nor the comments by the Examiner actually demonstrate that it is desirable to use wood as the material for the panel of a shear wall.

C. Rejection of Dependent Claims 27-30 is Also Improper Because the Same Structure of Mueller is Cited to Teach Two Structural Elements in Applicant's Claimed Invention.

In rejecting claims 27-30, Applicants note that the Examiner characterizes elements in Mueller already that were already described and characterized in the Examiner's rejection of claims 1 and 23 in a different manner for the rejection of these dependent claims. With respect to claim 23, the Examiner concluded that the "means for reducing bending" of fasteners could be found in either the Charles brackets or the Johnson washers. With respect to claims 27-30, the Examiner concluded that the "means for reducing bending" is a perimeter edging member (102a, b) (104) (106) (140) of Mueller disposed near an edge face of the structural panel (110a, b). Thus, it appears that the Examiner's position with respect to the "means for reducing bending" in dependent claims 27-30 is fundamentally inconsistent with the position taken by the Examiner with respect to independent claim 23, on which claims 27-30 depend.

With respect to claims 27-30, the Examiner has used the same structure of Mueller to teach two structural elements in Applicants' claimed invention. Such a rejection is not consistent with the law of obviousness. In order to teach claims 27, 28, 29 and 30, the Mueller patent must disclose both "...framing members..." and "...means for reducing bending of said perimeter fasteners...", arranged in the

manner set forth in the claims, including their relationship with respect to the perimeter fasteners and the structural panel.

Applicants respectfully submit that this basis for rejection was previously addressed in detail in Applicants' Response mailed on December 9, 2004, and Applicants will not repeat such arguments here. Applicants respectfully request that the rejections of claims 27, 28, 29 and 30 be withdrawn because the same structure in Mueller cannot be cited to teach two structural elements in Applicants' claimed invention.

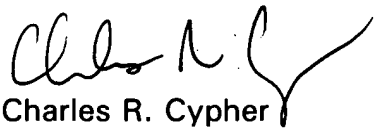
CONCLUSION

Applicants believe that the claims are in condition for allowance and request that the Examiner allow the application.

If the Examiner has any questions with respect to this paper, Applicants' attorney would be happy to discuss them with the Examiner.

Respectfully submitted,

Dated: December 19, 2005

BY: 

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Attachments: Declaration (11 pgs) with attached Exhibits 1 (11 pgs) and 2 (37 pgs); Attachment A (1 pg); Transmittal (1 pg); Petition for Extension of Time (1 pg); Return Receipt Post Card; Check #12166 for $1,020.00